

## ABSTRACT

An electronic tracked and ranging system is disclosed. Electronic tracking and ranging system applies interferometer principles to determine ranging distance from a monitor unit 10 to a tracked unit 12. In particular, the system transmits a monitor direct sequence spread spectrum (MDSSS) 52 signal from a monitor unit 10 to a tracked unit 12. Afterwards, tracked unit 12 transmits a tracked direct sequence spread spectrum (TDSSS) 56 signal that is locked in phase with the received monitor direct sequence spread spectrum (MDSSS) 52 at the physical location of the tracked unit. Finally, monitor unit 10 receives TDSSS signal 56, performs a comparison to a reference MDSSS signal 52 locks between MDSSS signal 52 and TDSSS signal 56 and outputs distance between monitor unit 10 and tracked unit 12 using several phase comparisons. Multiple frequencies within MDSSS signal 52 are phase detected so as to increase accuracy of monitor unit 10 ranging distance to tracked unit 12.